
U.S. Department of the Interior • U.S. Geological Survey

MINERAL INDUSTRY SURVEYS

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VANADIUM IN SEPTEMBER 1996

The total reported consumption of vanadium in September decreased by about 13% from consumption in August, according to the U.S. Geological Survey. Increases of 15% in the high-strength low-alloy and 7% in the tool steel end use categories were more than offset by decreases of 3% in the stainless and heat-resisting end use category, 24% in full alloy, and 28% in the carbon steel end use category. Total consumption in September was 350 metric tons, about 9% less than consumption in September 1995. The year to date consumption on September 30, 1996, was 3,410 tons, about 7% more than consumption for the same period in 1995.

The availability of vanadium pentoxide from China for sale on the spot market decreased sharply in the third quarter of 1996. As a result, vanadium pentoxide prices firmed in September to \$3.05-\$3.20 per pound. The lower supply of vanadium pentoxide was caused by a shortage of vanadium-bearing slag deliveries from New Zealand to China. Also, Highveld of South Africa has not shipped slag to China since the first of 1995. Highveld, a dominant vanadium producer, estimates that during the last 2 years, it has reduced its stockpile of vanadium-bearing slag from 25,000 tons to 5,000 tons. This was accomplished by shutting down ore production at its mines in Transvaal and using its stockpiled slag, by negotiating an agreement with Vametco whereby the company uses Highveld slag as raw material rather than its own ore, and by cutting back its own ore use in favor of

slag¹. The increase in vanadium pentoxide prices has not yet had an impact on ferrovanadium. U.S. prices have not budged from the \$7.30 to \$7.70 range for several weeks. European converters expect that prices will rise now that higher prices for slag and pentoxide are starting to take effect.

Update: Stockpile accepts vanadium offers

On October 31, 1996, the Defense National Stockpile Center announced the award of vanadium pentoxide under Invitation for Bids, DLA-VANADIUM-001. Awards were made to MRM Corporation, New York, NY, for 118,488.0 pounds at a unit price of \$3.052 per pound for a total value of \$361,589.83; Aimcor, Pittsburgh, PA, 127,961.6 pounds at a unit price of \$3.030 per pound for a total value of \$387,723.65. Vanadium pentoxide is offered for sale on the fourth Thursday of each month. Bids are due by 10:00 a.m., on November 29, 1996, at 8725 John J. Kingman Road, Suite 3339 (mail) or Site 4528 (hand delivery), Fort Belvoir, VA 22060-6223. Request for copies of the invitation and other inquiries should be directed to Kerri Chambers (703)767-5498.

¹Ryan's Notes, Sept. 23, 1996, p. 2.

TABLE 1
U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM, IN 1996 1/

(Kilograms, contained vanadium)

	August		September	
	Consumption	Stocks	Consumption	Stocks
Ferrovandium 2/	371,000 r/	345,000 r/	312,000	328,000
Oxide	1,120	6,610	1,120	6,610
Vanadium-aluminum alloy	W	14,200 r/	W	10,300
Vanadium chemicals 3/	W	W	W	W
Other 4/	32,300 r/	5,430	37,500	5,430
Total	404,000 r/	371,000 r/	350,000	350,000

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes other vanadium-iron-carbon alloys as well as vanadium oxides added directly to steel.

3/ Includes vanadates, chlorides and other specialty chemicals.

4/ Includes other vanadium alloys, vanadium metal, and items indicated by symbol "W."

TABLE 2
U.S. CONSUMPTION OF VANADIUM, BY END USE 1/

(Kilograms, contained vanadium)

	1995	1996		
		August	September	Year to date p/ 2/
Steel:				
Carbon	1,870,000	170,000 r/	121,000	1,280,000
Stainless and heat-resisting	31,800	1,660	1,610	16,500
Full alloy	833,000	93,000 r/	69,800	826,000
High-strength low-alloy	1,070,000	71,100	81,900	687,000
Tool	443,000	32,600	34,800	283,000
Unspecified	W	--	--	--
Total steel	4,240,000	368,000 r/	309,000	3,090,000
Cast irons	39,600	W	W	W
Superalloys	20,400	1,490	1,760	13,400
Alloys (excluding steels and superalloys):				
Cutting and wear-resistant materials	271	20	20	184
Welding and alloy hard-facing rods and materials	3,440	W	W	W
Nonferrous alloys	W	W	W	W
Other alloys 3/	307,000	W	W	W
Chemical and ceramic uses:				
Catalysts	W	W	W	W
Other 4/	W	W	W	W
Miscellaneous and unspecified	20,200	34,800 r/	39,600	306,000
Total consumption	4,640,000	404,000 r/	350,000	3,410,000

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions to previous months' data.

3/ Includes magnetic alloys.

4/ Includes pigments.

TABLE 3
U. S. EXPORTS OF ALUMINUM-VANADIUM MASTER ALLOY, FERROVANADIUM, OXIDES
AND HYDROXIDES OF VANADIUM, AND VANADIUM METAL IN AUGUST 1996 1/

(Kilograms, vanadium content unless otherwise specified)

Material and country	Quantity	Value	Year to date p/	
			Quantity	Value
Aluminum-vanadium master alloy: 2/				
Argentina	--	--	1,080	\$14,000
Australia	--	--	499	6,380
Austria	--	--	3,540	36,700
Canada	4,110	\$53,500	83,800	1,020,000
Chile	--	--	770	10,000
Germany	--	--	902	13,400
Ireland	--	--	597	10,000
Japan	10,500	149,000	20,100	313,000
Korea, Republic of	--	--	3,270	42,500
Malaysia	--	--	897	11,700
Mexico	--	--	22,200	295,000
Philippines	--	--	409	5,310
Russia	--	--	15,200	274,000
Suriname	--	--	139	6,460
Switzerland	--	--	571	7,420
United Kingdom	18,100	315,000	47,400	835,000
Venezuela	--	--	3,810	49,600
Total	32,800	518,000	205,000	2,950,000
Ferrovanadium:				
Australia	--	--	546	6,830
Canada	29,100	537,000	200,000	3,590,000
Mexico	1,760	49,000	101,000	1,950,000
Venezuela	--	--	2,300	76,800
Total	30,900	586,000	304,000	5,620,000
Vanadium pentoxide (anhydride): 3/				
Austria	4,340	41,200	4,340	41,200
Belgium	7,850	103,000	7,850	103,000
Italy	--	--	81,900	654,000
Japan	--	--	13,800	126,000
Kuwait	--	--	4,970	34,300
Mexico	4,700	46,500	4,700	46,500
Pakistan	--	--	6,040	83,600
Taiwan	--	--	632	6,000
United Kingdom	--	--	40,100	331,000
Total	16,900	191,000	164,000	1,430,000
Other oxides and hydroxides of vanadium:				
Australia	--	--	675	6,000
Canada	27,500	209,000	181,000	1,300,000
France	--	--	15,200	128,000
Germany	--	--	6,290	67,300
Italy	--	--	17,200	137,000
Japan	--	--	100	3,610
Russia	--	--	12,300	110,000
South Africa	--	--	61,100	474,000
Spain	--	--	2,210,000	9,030,000
Switzerland	--	--	13,800	74,100
Total	27,500	209,000	2,520,000	11,300,000
Vanadium metal, including waste and scrap: 2/				
Australia	--	--	2,320	92,000
Canada	283	7,540	1,750	46,700
Germany	--	--	636	18,100
Taiwan	--	--	131	11,900
United Kingdom	10	11,800	84,600	572,000
Total	293	19,300	89,400	740,000

p/ Preliminary.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Gross weight.

3/ May include catalysts containing vanadium pentoxide.

Source: Bureau of the Census.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF ALUMINUM-VANADIUM MASTER ALLOY,
FERROVANADIUM, OXIDES AND HYDROXIDES OF VANADIUM, AND VANADIUM METAL IN AUGUST 1996 1/

(Kilograms, vanadium content unless otherwise specified)

Material and country	Quantity	Value	Year to date p/ 2/	
			Quantity	Value
Aluminum-vanadium master alloy: 3/				
Germany	113	\$5,060 4/	1,610	\$16,500
Ferrovandium:				
Austria	4,040	64,900	31,300	495,000
Belgium	--	--	62,700	947,000
Canada	45,300	714,000	393,000	6,070,000
China	73,800	1,000,000	97,000	1,320,000
Czech Republic	48,600	677,000	355,000	4,930,000
Germany	--	--	2,690	32,300
Russia	18,500	381,000	70,400	1,440,000
South Africa	--	--	124,000	1,880,000
Tajikistan	--	--	40,500	626,000
Total	190,000	2,840,000	1,180,000	17,700,000
Vanadium pentoxide (anhydride): 5/				
China	--	--	40,800	329,000
France	--	--	10,200	252,000
Germany	--	--	427	18,100
Hong Kong	198	18,700	198	18,700
South Africa	41,000	508,000	269,000	3,350,000
United Kingdom	--	--	4	27,200
Total	41,200	527,000	321,000	4,000,000
Other oxides and hydroxides of vanadium:				
France	--	--	304	48,600
Germany	--	--	1	2,610
United Kingdom	--	--	6,030	76,000
Total	--	--	6,340	127,000
Vanadium metal, including waste and scrap: 3/				
France	--	--	90	8,500
Germany	222	9,330	19,800	405,000
Russia	5	24,800	1,140	75,000
United Kingdom	--	--	1	4,220
Total	227	34,100	21,100	493,000

p/ Preliminary.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions to previous months' data.

3/ Gross weight.

4/ All or part of these data have been referred to the Bureau of the Census for verification.

5/ May include catalysts containing vanadium pentoxide.

Source: Bureau of the Census.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF VANADIUM-BEARING
ASH, SLAG AND RESIDUES IN AUGUST 1996 1/

(Kilograms, vanadium pentoxide content)

Material and country	Quantity	Value	Year to date p/	
			Quantity	Value
Ash and residues:				
Canada	60,700	\$140,000	173,000	\$533,000
Mexico	191,000	349,000	418,000	1,480,000
Netherlands	--	--	7,760	2,670
Netherlands Antilles	--	--	87,900	168,000
Portugal	--	--	7,130	6,470
United Kingdom	--	--	14,800	3,260
Total	252,000	489,000	709,000	2,190,000
Ash and residues (not from the manufacture of iron and steel):				
Canada	106,000	23,400	1,010,000	229,000
Slag, from the manufacture of iron and steel:				
South Africa	291,000	1,100,000	879,000	3,390,000
Other residues: (Not advanced in value)	--	--	--	--

p/ Preliminary.

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF MISCELLANEOUS
VANADIUM CHEMICALS IN AUGUST 1996 1/

(Kilograms, vanadium content)

Material and country	Quantity	Value	Year to date p/ 2/	
			Quantity	Value
Sulfates:				
India	--	--	25	\$14,900
Vanadates:				
Germany	--	--	3,340	72,700
South Africa	--	--	46,200	319,000
Switzerland	--	--	99	1,260
Total	--	--	49,600	393,000
Hydrides and nitrides:				
South Africa	--	--	255,000	4,630,000

p/ Preliminary.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions to previous months' data.

Source: Bureau of the Census.